

WE CLAIM:

1. A service system including server apparatuses, client apparatuses and data processing relay apparatuses for relaying data communication between said server apparatuses and said client apparatuses, wherein

said server apparatus comprises a means responsive to a service request issued by said client apparatus to prepare or create data processing control information indicative of a processing method of data requested, an extended data producing means for producing extended data including said requested data and said data processing control information, and a means for transmitting said extended data as a response to said service request,

said data processing relay apparatus comprises a means for receiving said service request to said server apparatus from said client apparatus to transfer said service request to said server apparatus, a data processing unit for processing said extended data received from said server apparatus in accordance with said data processing control information added to said extended data to produce its processed result data, and a means for transmitting said processed result data produced by said data processing unit to said client apparatus as response data to said data request received from said client apparatus.

2. A service system according to Claim 1,

wherein

said data processing relay apparatus comprises a memory unit for storing said extended data received from said server apparatus, and when said extended data corresponding to said service request received from said client apparatus is already stored in said memory unit, said data processing unit uses said extended data already stored in said memory unit as said extended data for a response to said service request.

3. A service system according to Claim 2, further comprising:

a user management apparatus connected to said data processing relay apparatus through a communication line to manage, for each user, user management information containing user authentication information for authenticating said user of said client apparatuses and user group information indicative of a group to which said user belongs, wherein

said client apparatus comprises a means for transmitting said service request containing user authentication information,

said data processing relay apparatus comprises a user authentication unit for authenticating said user by using said user authentication information contained in said service request and said user authentication information contained in said user management information registered in said user

management server,

said data processing control information preparing or creating means of said server apparatus creates said data processing control information of said extended data containing individual control information for each user in response to said service request,

said data processing unit of said data processing relay apparatus decides said processing method of said requested data corresponding to said user of said client apparatus by using said individual control information and said user authentication result.

4. A service system according to Claim 3, further comprising:

a charging management apparatus connected to said data processing relay apparatus through a communication line to manage user charge information which is charge information for said each user, wherein

said data processing control information preparing or creating means of said server apparatus creates said data processing control information containing charging instruction information specifying charge information with respect to said requested data,

said data processing unit of said data processing relay apparatus transmits said response data to said user of said client apparatus authenticated by said authentication unit, and transmits charge informa-

tion for said response data to said user to said charging management apparatus.

5. A service system according to Claim 4, wherein

said data processing control information preparing or creating means of said server apparatus creates said charging instruction information containing information for specifying said user wherein each of said information for specifying said user corresponds to each of said charge information for each user.

6. A service system according to Claim 4, wherein

said data processing control information preparing or creating means of said server apparatus specifies charge range information as said charging instruction information, and

said data processing unit of said data processing relay apparatus uses said charge range information to decide said charge information.

7. A service system according to Claim 6, wherein

said data processing control information preparing or creating means of said server apparatus creates said data processing control information of said extended data containing instruction information which specifies an indication information indicative of replacement or insertion by other data at a specified

part of said requested data, and

said data processing unit of said data processing relay apparatus performs replacement or insertion processing by other data at said specified part of said requested data in accordance with said instruction information of said data processing control information of said extended data.

8. A service system according to Claim 7, wherein

said indication information includes part information indicative of a replacement or insertion part of the requested data, data type information for specifying replacement or insertion data, and a parameter according to the type of replacement or insertion data.

9. A service system according to Claim 8, wherein

said replacement or insertion data is time information indicative of time at which said service request from said client apparatus has been processed, and

said data processing unit uses said time information at which said data request has been processed, as said other data.

10. A service system according to Claim 8, wherein

said client apparatus creates said data request, containing information for identifying said

user of said client apparatus,

said replacement or insertion data is information for identifying said user of said client apparatus,

said data processing unit uses said information for identifying said user of said client apparatus contained in said data request as said other data.

11. A service system according to 8, wherein said replacement or insertion data is an address selected from a group of addresses prepared in advance by said data processing unit of said data processing relay apparatus.

12. A service system according to Claim 7, wherein

said client apparatus creates said data request containing said user identifying information, and

further comprising:

a data information server which is connected to said data processing relay apparatus through a communication line, and manages said replacement or insertion data so that said replacement or insertion data can be searched by user attribute information, wherein

said user management server manages said user identifying information and said user attribute information in corresponding manner to each other,

said data processing unit of said data

processing relay apparatus first gets said user attribute information corresponding to said user identifying information with reference to said user management server, then in accordance with said instruction information, selects replacement or insertion data corresponding to said user attribute information from said data information server, and finally uses said selected data as said other data.

13. A service system according to Claim 7, wherein

said client apparatus creates said data request containing area information, and

further comprising:

a data information server which is connected to said data processing relay apparatus through a communication line, and manages said replacement or insertion data so that said replacement or insertion data can be searched by said area information,

wherein

said data processing unit of said data processing relay apparatus selects said replacement or insertion data corresponding to said area information from said data information server, and uses said selected data as said other data.

14. A service system according to Claim 7, wherein

said data processing control information preparing or creating means of said server apparatus

creates said data processing control information of said extended data containing instruction information for instructing said data processing unit to perform a specified operation, and instruction information for indicating replacement or insertion by said operation result at said specified part of said requested data, and

said data processing unit of said data processing relay apparatus includes a means for performing an operation in accordance with said instruction information, and a means for performing replacement or insertion by said operation result at a part specified by said instruction information.

15. A service system according to Claim 2, wherein

said data processing control information preparing or creating of said server apparatus specifies distribution instruction information indicative of a list of server apparatuses to which the same service requests are transferred in a distributed manner, as said data processing control information of said extended data, and

said data processing unit of said data processing relay apparatus includes a means for selecting a server apparatus from said list of server apparatuses in accordance with said distribution instruction information in said extended data, when said extended data corresponding to said service request received

from said client apparatus is already stored in said memory unit, and a means for transferring said service request to said selected server apparatus.

16. A service system according to Claim 2, wherein

said data processing control information preparing or creating means of said server apparatus specifies communication quality indication information as said data processing control information of said extended data,

said data processing unit of said data processing relay apparatus includes a means for making communication quality instruction to another relay apparatus on a communication route to said client apparatus in accordance with said communication quality instruction information,

said another relay apparatus performing relay processing in accordance with said communication quality indication.

17. A service apparatus according to Claim 2, further comprising:

a server management server connected to said data processing relay apparatus through a communication line to manage server authentication information for authenticating said server apparatuses, and wherein

said data processing control information preparing or creating means of said server apparatus creates said data processing control information

containing said server authentication information, and
said data processing relay apparatus includes
a server authentication unit for authenticating said
server apparatus in accordance with said server
authentication information contained in said data
processing control information,

said data processing unit of said data
processing relay apparatus performs processing
specified by said data processing control information
depending on a server authentication result of said
server authentication processing.

18. A service system according to Claim 17,
further comprising:

a charging management apparatus connected to
said data processing relay apparatus through a communi-
cation line to manage server charging information which
is charge information with respect to said server
apparatus, and
wherein

said data processing relay apparatus
transmits charge information with respect to said
server apparatus to said charging management apparatus
in accordance with executed processings specified by
said data processing control information,

said charging management apparatus performs
charge processing with respect to said server
apparatus.

19. A service system according to Claim 2,

wherein

said data processing control information preparing or creating means of said server apparatus specifies priority store instruction information of data as said data processing control information of said extended data,

said memory unit includes a specific storage area previously assigned to said server apparatus,

said data processing unit of said data processing relay apparatus includes a means for storing said extended data in said specific storage area of said memory unit in accordance with said priority store instruction information from said server apparatus.